

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 018
CIRC ACCESSION NO--AP0119307
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PT-BA AND PD-BA ALLOYS THAT ARE RICH IN PT AND PD HAVE EMISSIVE PROPERTIES. AN ALLOY CORRESPONDING TO THE PT SUB5 BA COMPN. WAS HOMOGENIZED AT 1320DEGREES IN A PROTECTIVE ATM. OF AR FOR 50 HR AND THEN ANNEALED AT 800DEGREES FOR 30 HR AND AT 700DEGREES FOR 50 HR. INTENSITIES WERE MEASURED WITH A DIFFRACTOMETER BY USING MICROSCOPIC CONTROLLED MICROSECTIONS PROTECTED WITH PARAFFIN WAX. THE COMPD. IS STABLE IN THE ABOVE TEMP. RANGE, DESPITE PREVIOUS DATA (T. HEUMANN, CA 45:6451G), AND IT PRESERVES THE STRUCTURE OF THE CACU SUB5 TYPE WITH A EQUALS 5.505 PLUS OR MINUS 0.006 AND C EQUALS 4.337 PLUS OR MINUS 0.0009 ANGSTROM. THE DIFFERENT DIFFRACTOGRAMS REVEALED DIFFERENT INTENSITIES, WHICH MIGHT BE DUE TO VARIOUS DEGREES OF DECOMPN. OF PT SUB5 BA ON THE MICROSECTION SURFACE UNDER THE INFLUENCE OF THE ATM. PD SUB5 BA WITH A EQUALS 5.54 PLUS OR MINUS 0.01 AND C EQUALS 4.33 PLUS OR MINUS 0.02 ANGSTROM IS ISOMORPHIC WITH PT SUB5 BA.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.375.4:621.375.132.3

KADUK, B. G., FLEYSHMAN, I. V., MASYURENKO, YU. A., RALLEV, I. N.

"Application of an Integrated Circuit of a Differential Amplifier as the Emitter Repeater without a Level Shift"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Engineering. Scientific and Technical Collection. Microelectronics), 1971, vyp. 5(31), pp 147-148 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5D113)

Translation: An emitter repeater without zero level shift is proposed which is based on a semiconductor integrated circuit of the P 2222 differential amplifier without additional elements. The dynamic range of the input voltages is 0.1-4.0 volts; the transmission characteristic is rectilinear; the transmission coefficient is 0.97. In the temperature range of 20-70° C the drift of the output voltage is $< 0.01\% \text{ deg}^{-1}$. This is explained both by the identicalness of the transistors and the equality of their temperatures. The amplifier can be used in electronic phase meters. There is 1 illustration and a 2-entry bibliography.

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1/2 033 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CLINICAL OBSERVATIONS OVER THE USE OF THE APPARATUS SURGICAL METHOD
OF ELIMINATING SECONDARY DEFORMATIONS OF THE OCCLUSAL SURFACE OF DENTAL
AUTHOR--RALLO, V.N.

R

COUNTRY OF INFO--USSR

SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 2, PP 63-65

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DENTISTRY, PROSTHESIS, JAW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1849

STEP NO--UR/0511/70/049/002/0063/0065

CIRC ACCESSION NO--AP0101894

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--APO101894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY. THE ARTICLE CARRIES THE RESULTS OF ELIMINATION OF SECONDARY DEFORMATIONS OF THE OCCLUSAL SURFACE OF DENTAL ARCHES BY THE APPARATUS SURGICAL TECHNIQUE. THE TREATMENT WAS EFFECTED IN 45 PATIENTS FOR THEIR PREPARATION TO PROSTHESIS. BY REORGANIZATION OF OCCLUSAL RATIOS CONDITIONS WERE CREATED FOR THE RATIONAL PROTHESIS. THE TREATMENT WAS COMPLETED IN 32 PATIENTS, 7 PERSONS ARE UNDER OBSERVATION AND 6 REFUSED TREATMENT FOR DIFFERENT CAUSES. THE AUTHOR ARRIVED AT THE CONCLUSION THAT THE REFERRED TO TECHNIQUE SHORTENS THE TERMS OF PREPARATION TO PROSTHESIS. THE TIME OF REORGANIZATION OF THE ALVEOLAR PROCESS DEPENDS ON THE DEPTH OF DEFORMATION OF THE OCCLUSAL SURFACE, THE CAUSE OF DEFORMATION OF THE JAW AND THE PATIENT'S AGE.

UNCLASSIFIED

USSR

R

UDC 621.317.76

RAMANAUSKAS, B. B., REKEVICHUS, K. I.

"Resonance Frequency Meter Operating in the 250-500 Megahertz Range"

Obmen opytom v radioprom-sti (Exchange of Experience in the Radio Industry),
Vyp. 2, Moscow, 1970, pp 45-46 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract
No 8A377)

Translation: It is noted that in spite of careful manufacture, frequency meters with lumped circuits give a measurement error of no less than 0.5-1%. When developing the frequency meter designed for building into a rocking frequency generator, it was necessary to reduce the error to 0.2-0.5% and insure convenience of operation, technological nature when manufacturing, and so on. In the solution found, a volumetric resonator of round cross section loaded by a capacitance and operating on a type E010 wave is used as the frequency meter circuit. The procedure for determining the partial errors and a calculation of the total error of the instrument are presented.

1/1

USSR

UDC: 681.325.5

RAMANAUSKAS, V. A.

"An Asynchronous System for Control of Binary Adders"

Vychisl. Tekhnika. T. 1 [Computer Technology. Volume 1], Kaunas, 1970, pp 161-164 (Translated from REferativnyy Zhurnal Avtomatika, Teletekhnika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B216, by G. K.)

Translation: An asynchronous control system for binary adders is analyzed, the operating principle of which is based on analysis of certain fixed digits in the components and approximate determination of the length of possible maximum transfers. The speed can be increased by slightly increasing the apparatus to a value comparable to the speed of an asynchronous adder. One illustration; two tables; two biblio. refs.

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USSR

UDC 575.24

DOMSHLAK, M. G., POMERANTSEVA, M. D., and RAMAIYA, L. K., Institute of General Genetics, Academy of Sciences USSR, Moscow

"Mutagenic Effect of Different Kinds of Radiation on the Germ Cells of Male Mice.
IV. Genetic Effect of Fast Neutrons"

Moscow, Genetika, Vol 6, No 7, Jul 70, pp 73-82

Abstract: The radiosensitivity of mouse germ cell chromosomes in various stages of spermatogenesis was studied. It was found that the postmeiotic stages are more sensitive to fast neutrons than the spermatogonia. The mutation rate-dose relationship in matured sperm was linear at doses ranging from 18 to 216 rad. In the spermatogonia, the nature of the relationship between the frequency of dominant lethals and the dose differed from that observed in the postmeiotic stages, where an increase in dose had little effect. The frequency of reciprocal translocations in the spermatogonia increased linearly with doses up to 72 rad. Higher doses did not increase the mutation rate, but at 216 rad the frequency of translocations decreased sharply. The differences between the stages of spermatogenesis with respect to genetic radiosensitivity are thus identical after exposure to fast neutrons and after X-ray irradiation. The relative genetic effectiveness (λ_{rel}) of fast neutrons was the same (about 4.5) for different types of genetic injuries, regardless of the stage of spermatogenesis.

USSR

UDC 575.24

DOMSHLAK, M. G., POMERANTSEVA, M. D., and RAMAYYA, L. K., Institute of General Genetics, Academy of Sciences USSR, Moscow

"Mutagenic Effect of Various Types of Radiation on Spermatogonia in Mice. V.
The Mutagenic Effect of Single and Fractionated Irradiation with Fast Neutrons
on Spermatogonia in Mice"

Moscow, Genetika, Vol 6, No 8, Aug 70, pp 79-85

Abstract: The mutagenic effect of 1.5 Mev neutrons on spermatogonia was studied in experiments in which male mice were irradiated with total doses of 100 and 216 rad. The frequency of reciprocal translocations (determined directly on the spermatogonia) and the frequency of dominant lethal mutations (determined on breeding the irradiated males with nonirradiated females) were used as criteria. The mutation yield was higher after fractional irradiation than after irradiation with a single dose. This effect was evident at both dose levels but was more pronounced for a total dose of 216 rad than for 100 rad. In irradiation with X-rays, an increase in the frequency of mutations is observed on fractionation of the dose only. After exposure to the full dose in a single irradiation, there was a higher rate of elimination of spermatogonial cells with an increased sensitivity to mutation. The results indicate the possibility of accumulating mutations by repeated irradiation with fractional doses.

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RAMAZANOV P. YEV

SPPS SPACED

6-73

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XI-12. GROWTH FROM THE LIQUID PHASE AND SOME PROPERTIES OF $In_xGa_{1-x}As$ FILMS

[Article by B. G. Abramov, B. G. Zakhrov, U. M. Kunits, F. I. Lebedeva, N. Ye. Ramazanov, Tomsk Institute of Steels, Institute of Physics, Institute of Metallurgy, Institute of Physics, Russian Academy of Sciences, Tomsk, Russia, 12-17 June 1992, p. 139]

A study was made of the structural perfection, mechanical stresses, the component distribution and the optical and luminescent properties of the $In_xGa_{1-x}As$ epitaxial layers. The method of epitaxy was used to obtain $In_xGa_{1-x}As$ layers in the $0 \leq x \leq 0.8$ region on the Ga (111) side of GaAs and in the $1 > x > 0.8$ region on the In (111) side of InAs.

The growth rate was calculated as a function of the growth conditions. The results obtained are compared with the experimental results. The growth rate as a function of the growth rate is nonmonotonic. This leads to the dependence of the component distribution in the direction perpendicular to the growth plane on the growth conditions.

The structural perfection and mechanical stresses in the film were caused physically by the difference both of the linear expansion coefficients and the lattice parameters. The dislocation density on the surface and the morphology of the film depend on the growth conditions. The optical and luminescent studies show that the dependence of the width of the forbidden zone in $In_xGa_{1-x}As$ on composition can be described by a linear expression.

USSR

UDC 537.311.53:546.19'681

KRIVOV, N.A., LEVKOVICH, V.N., MALKINOV, S.V., MELEV, V.G., RAZUMOV, P.YE.,
REDDIKO, V.P.

"Effect Of Electron (1.5 Mev) And Proton (5 Mev) Irradiation On Electrical,
Optical, And Photoelectric Characteristics Of Gallium Arsenide"

V sb. Radiat. fiz.-kristallogr. kristallov (Radiation Physics Of Nonmetallic Crystals-
Collection Of Works), Vol 1, Part 2, Kiev, "Nauk. dumka," 1971, pp 16-21 (From
Radiofizika i Radiochimika, No 10, October 1971, Abstract No 10849)

Translation: The paper studies the spectra of radiation damage created by electrons (1.5 Mev) and protons (5 Mev) at temperatures close to 300° K, their resistance to annealing, and also the effect of Cu impurity on the spectra of the levels originating after irradiation. GaAs of n- and p-type was used with carrier concentrations of $5 \cdot 10^{12} \dots 10^{13}$ cm⁻³. The mobilities for n- and p-type, respectively at a temperature of 300° K were 2200-4000 cm²v⁻¹ and 140-
320 cm²v⁻¹ sec^{1/2}, respectively. The GaAs was doped with Ni and Zn and part of
the material was specifically not doped. 3 ill. 7 ref. I.Y.

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1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--LUMINESCENCE OF ZINC SULFIDE EPITAXIAL FILMS -U-

AUTHOR--(02)-KUZNETSOV, M.V., RAMAZANOV, P.YE.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 148-50

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--LUMINESCENCE, ZINC SULFIDE OPTIC MATERIAL, UV LIGHT,
PHOTOLUMINESCENCE, EPITAXIAL GROWTH, POLYCRYSTALLINE FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1256

STEP NO--UR/0138/70/013/002/0148/0150

CIRC ACCESSION NO--AP0124907

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124907

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EPITAXIAL FILM OF ZNS, GROWN ON GAAS AND EXHIBITED WITH UV LIGHT, EXHIBITS A PHOTOLUMINESCENCE WITH AN ORGANE BAND, WITH A MAX. SIMILAR TO 2.02 EV. THE EFFECT OF THE COMPN. (IMPURITIES) OF THE INITIAL ZNS DOES NOT HAVE AN ESSENTIAL EFFECT ON THE PHOTOLUMINESCENT SPECTRUM (BECAUSE OF SELF PURIFICATION). THIS FACT IS NOT YET WELL UNDERSTOOD, BUT IT CAN BE ASSUMED THAT THE ENHANCED ORANGE BAND WITH A MAX. AT 2.02 EV IS RELATED TO THE SELF ALLOYING OF ZNS AND UNDERLYING MATERIALS (GAAS) ABLE TO REDUCE THE LUMINESCENCE OF AN ACTIVATOR SUCH AS CU. THE NATURE OF LUMINESCENT CENTERS, RESPONSIBLE FOR THE BAND OF PHOTOLUMINESCENCE WITH A MAX. AT 2.02 EV IS NOT YET CLEAR, BUT CAN BE ASCRIBED TO THE SPECTRAL DISTRIBUTUION OF PHOTO COND. OF THE HETEROTRANSITION ZNS-GAAS, PROBABLY CONNECTED WITH THE CENTERS. THE SPECTRUM OF PHOTOLUMINESCENCE OF THE FILM ZNS-CU HAS BESIDES A MAX. AT 615 NM ANOTHER MAX. IN THE REGION 510-545 NM WHICH PROBABLY DEPENS ON THE PRESENCE OF CU IN ZNS. FACILITY: SIB. FIZ.-TEKH. INST. TM. KUZNETSOVA, TOMSK, USSR.

UNCLASSIFIED

USSR

UDC 621.375.82

RAMAZANOVA, G. S.

"Calculation of the Oscillation Power of Multimode Gas Lasers With Saturation
of an Arbitrary Character"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972,
vyp. 108, pp 116-118 (from RZh-Fizika, No 8, Aug 72, Abstract No 8D1069 by
I. V. Rogova)

Translation: A study was made of the influence exerted by the degree of homogeneity of gain saturation on the character of the output power dependence of ion lasers on the excess of pumping over threshold pumping. In accordance with the calculated power variations with the excess, curves relating the optimum transmission coefficient, amplification, and losses per pass were computed. Comparison with experiment confirms the assumption of a substantial distinction between the frequency dependence of the gain and the Gaussian shape.

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USSR

UDC 547.94 + 543.43

ISHBAYEV, A. I., ASLANOV, KH. A., SADYKOV, A. S., and RAMAZANOVA, M. A., Order of the Labor Red Banner Tashkent State University Imeni V. I. Lenin

"Study of the Quinolizidine Alkaloids by the Method of Optical Rotatory Dispersion (ORD). I. ORD of Lupinin, Citizin, Spartein Group of Alkaloids, and Aphylinic Acid"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 328-333

Abstract: ORD curves of Spartein, Lupinin, Citizin group of alkaloids and some derivatives of aphylinic acid were studied. Among the group of α -pyridone ring containing compounds a higher molecular amplitude was exhibited by the epimers with a trans-quinolizidine junction of the nuclei, than with the cis-isomers. It has been shown that alkaloids with a lactam group in the external ring have a higher molecular amplitude than corresponding compounds with an $>\text{N}-\text{C}=\text{O}$ group at the internal ring. A relationship has been shown between the form, sign and molecular amplitude of the curves and the type of a build-up of quinolizidine rings, as well as of the molecular rotation and the location of a double bond in ring A or D. The derivatives of Lupinin and aphylinic acid have a smooth curve with minor anomalies shifted towards longer wavelength.

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1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--WIDE BAND REFLECTORS BASED ON MULTILAYER DIELECTRIC COATINGS -U-

AUTHOR--(04)--KOROLEV, F.A., KLEMENTEVA, A.YU., MESHCHERYAKA, T.F.,
RAMAZINA, I.A.
COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 775-80

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIELECTRIC COATING, LIGHT REFLECTION, WIDEBAND TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0954

STEP NO--UR/0051/70/028/004/0775/0780

CIRC ACCESSION NO--AP0121556

UNCLASSIFIED

2/2 031 UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0121556

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHODS OF PREPN. OF VARIOUS
WIDEBAND REFLECTORS AS WELL AS EXPTL. RESULTS IN THE VISIBLE AND UV
SPECTRAL REGIONS ARE GIVEN.

UNCLASSIFIED

USSR

UDC 547.241

T'YUARAY, R. S., RAM DZHAY SHUKLA, Technological Institute, Kharkourt Batler, Kanpur-2, India

"Organophosphorus Compounds. III. α -Diarylphosphinyl Substituted Benzyl Alcohols"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 997-1000

Abstract: Several α -diarylphosphinyl substituted benzyl alcohols have been synthesized by addition of bromomagnesium salt of diphenylphosphine oxide, chloromagnesium salt of dibenzylphosphine oxide, and bromomagnesium salt of di-1-naphtylphosphine oxide to substituted benzaldehydes and acetophenone. When three moles of α -naphtylmagnesium bromide are added to one mole of di-n-butylphosphonate followed by hydrolysis of the Grignard complex, the product is the oxide of di-1-naphtylphosphine. The reactions were carried out in anhydrous benzene at room temperature or with slight heating. The products were identified by IR and NMR spectroscopy.

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Semiconductor Technology

USSR

UDC 543.51

CHUPAKHIN, M. S., RAMENDIK, G. I., and YAVRIYAN, A. N., Institute of Geochemistry and Analytical Chemistry ~~Institut V.I.~~ Vernadskiy, Moscow, Academy of Sciences USSR

"A Layer by Layer Mass-Spectroscopic Method of Analysis. Communication 4. In-Depth Resolution During Analysis of Semiconductor Films"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 25, No 7, Jul 70, pp 1301-1303

Abstract: Uniform parallel layers may be taken along the entire sample being analyzed by covering the entire area with identical craters, which in turn, depends on the stability of the interelectrode gap. Random error due to taking the sample layers is less than 30%, and in most cases ranges from 10 to 15%. It was determined that during the study of the distribution of impurities in thin semiconductor films, layers of $1\frac{1}{4}$ thickness may be analyzed by the mass-spectroscopic method with vacuum spark. The authors sincerely thank S. Ya. Fedyukina for measuring the craters and samples, and also A. D. Semenov for his part in setting up the experiments.

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1/2 032

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--DIFFUSIVE TRANSFER OF A SUBSTANCE AND "MEMORY" EFFECT DURING LAYER
BY LAYER MASS SPECTRAL ANALYSIS OF SOLIDS -U-

AUTHOR-(03)-CHUPAKHIN, M.S., VENITSIANOV, YE.V., RAMENDIK, G.I.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 905-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BORON, SILICON, MASS SPECTROMETER, MASS SPECTROSCOPY, METAL
DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1135

STEP NO--UR/0020/70/190/004/0905/0908

CIRC ACCESSION NO--AT0116600

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--16OCT70

CERC ACCESSION NO--AT0116600

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFUSION OF B IN SI WAS STUDIED TO DETN. THE DEGREE OF ERROR WHICH IS INTRODUCED IN A MASS SPECTROSCOPIC ANAL. DUE TO A "MEMORY" EFFECT. THE STUDY REVEALS THAT APPARENTLY ALL THE PUBLISHED DATA FOR DETN. OF IMPURITIES IN SOLIDS HAVE AN ERROR DUE TO THIS EFFECT. FACILITY: INST. GEOKHIM. ANAL. KHIM. IM. VERNADSKOGO. MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 548.3

RAMENSKAYA, M. YE., Inter-Faculty Laboratory for Luminescence Research of
Natural Carbon Substances

"Method of Illustrating Crystal Structure in the Form of a Projection of the
Cell of an Elementary Layer /hkl/ on Plane (hkl)*"

Moscow, Vestnik Moskovskogo Universiteta--Geologiya, No 1, Jan-Feb 73, pp 67-72

Abstract: A graphic method is proposed for constructing the orthogonal projection of any crystal structure on face (hkl) with prior separation for projection of a minimum volume which yields a total representation of crystal structure and bounded by two translations in plane (hkl). The article describes construction of projections using this method and is accompanied by figures illustrating the procedures. The main content of this work was reported at the Fedorovsk Session on 20 May 1971 in the report "Graphic Method of Constructing the Layers of a Structure Parallel to a Given Face". R. V. GALIULINA counseled the authors in this work. 3 figures, 7 bibliographic references.

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USSR

UDC 621.396.6--181.5 (CSS.8)

BARANOV, A.I., BATEKIAURI, V.D., VOSNIKOYNIKOV, I.I., GAVRILOV, R.M., GALYATKIN,
V.P., GOUBITSOV, M.S., ZAMENHOVSKIY, N.B., ZALIPESKIY, A.I., ZLOTIN, V.A.,
KAZATISKER, L.I., LAGUTAIN, G.V., LARIONOV, YU. S., PREDOBRAZHENSKIY, S.P., MALKIN,
D.L., RAMENSKIY, I.V., SIMEONOVA, I.S., TIKHOMIROV, B.G., FISHEL', I.SH., SHUBERT,
M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from
RZh-Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

Translation: A device proposed for deposition of multilayer coverings in a vacuum is fulfilled in the form of a number of successively mounted independent operating chambers supplied with evaporators, heaters, and an exhaust system. The device contains a mechanism for transporting substrates, a mechanism for loading and unloading, and a drive mechanism. With the object of increasing the reliability of the device and improving the quality and reproducibility of the coverings deposited, outside of the area of the arrangement of operating chambers and parallel to it a supplementary vacuum chamber is installed, which serves for the deposition in it of the transporting mechanism, and which communicates with each of the operating chambers by means of vacuum-overlapping transfer windows located on the side wall

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USSR

BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

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- 44 -

USSR

R Nickel

UAC 63.14:659.67

FRANTOM, V. A., and NIKONOV, A. V., Department of Physics of Nonconductive Testing, Academy of Sciences, USSR

"Influence of Magnetization of Nickel on the Rate of Relaxation of Internal Strasses and Elastic Aftereffect".

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 3, Sep 73, pp 640-642

Abstract: This work experimentally demonstrates the influence of the degree of magnetization in constant and variable magnetic fields on the change in stress relaxation and elastic aftereffect in nickel. Before testing in a special device constructed for the purpose, the specimens were annealed in a vacuum at 1000° C and held at this temperature 3 hr, with subsequent cooling together with the furnace. The tests on stress relaxation and aftereffect were performed at room temperature. The curve of stress relaxation shows that there is an area of magnetic fields at 10-20 oe where the greatest change in relaxation is noted. The greatest drop in stress in alternating fields is achieved in fields corresponding to the region of maximum magnetic permeability. In the study of after-effect, it was found that both in tests for stress relaxation and creep, magnetization with constant or variable fields influences the process of decreasing deformation in nickel specimens.

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1/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--THE ETAP-2 ELECTRONIC TACHEMETER -U-

AUTHOR-(02)-KORABELNIKOV, A.A., RANIN, YE.L.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AVTOMOBIL'NAYA PROMYSHLENNOST', NO 2, 1970, 00 16-17
DATE PUBLISHED-----70

R

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--TACHOMETER, PULSE SIGNAL, IGNITION MECHANISM/(U)ETAP2

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1220

STEP NO--UR/0113/70/000/002/0016/0017

CIRC ACCESSION NO--AP0123184

UNCLASSIFIED

2/2 024

CIRC ACCESSION NO--AP0123184 UNCLASSIFIED PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ELECTRONIC TACHOMETER IS
DESCRIBED. ITS BASIC PRINCIPLE OF OPERATION INVOLVES THE REGISTRATION
OF THE NUMBER OF ELECTRIC PULSES IN THE IGNITION SYSTEM. THIS NUMBER IS
A MULTIPLE OF ENGINE CRANKSHAFT RPM. ORIGINAL ARTICLE: TWO FIGURES.

UNCLASSIFIED

Psychology

USSR

RAMISHVILI, D. I. (Reviewer)

"Some Data on Nonspoken Means of Contact"

Tbilisi, Psikhologicheskiye Issledovaniya (Psychological Studies), by
Prangishvili, A. S. (Editor), Vol 2, 1971, pp 14-49

Abstract: An extensive review of theories on nonspoken means of contact by man and other animals is followed by data from original experiments on the role of expressive, nonspoken communication within the process of speech. The purpose of the review and experiments is to elucidate the evolution of social contact with particular emphasis on higher forms of such contact -- i.e. above the level of instinctive behavior as described by Conrad Lorenz. The definition of contact is discussed at length. Byuller's definition of contact as dynamic coordination of the activity of living organisms for a particular end implies that a contact stimulus is a signal for subsequent action which in itself has no significance to the animal's existence, and that contact requires 2 or more individuals. Arguments are suggested contradicting the need for having 2 or more individuals for such contact to exist and suggesting that a social form of life is not necessarily a prerequisite for evolution of contact stimuli (signals). Two successively higher forms of contact defined by Byuller are expressive movement, which reveals the internal state of the animal and

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USSR

RAMISHVILI, D. I., *Psikhologicheskiye Issledovaniya*, Vol 2, 1971, pp 14-49

symbols, which are unique to human speech. This categorization of contact adopted with some reservation as to their application. Revesh's differentiation of contact in its narrow sense (spatial approximation) from contact in its wider sense (all types of associations and means of mutual understanding) as 2 stages in evolution of contact is considered to be too restrictive in that it implies all forms of contact evolved from a need for spatial approximation. Revesh's suggestion that expressive movements have no communication function per se and are simply a method for an animal to discharge an internal emotional state is also debated. Kirchhoff's attempt to define expression on the basis of an etymological study is also challenged.

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USSR

UDC: 8.74

RAMISHVILI, G. S.

"Concerning the Selecting of Decision Functions"

Tr. In-t sistem upr. AN GruzSSR (Works of the Institute of Control Systems, Academy of Sciences of the Georgian SSR), 1971, 10, No 1, pp 69-77 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6v570)

Translation: The paper deals with the problem of selecting decision functions in the process of pattern recognition. The two basic indices of effectiveness and cost are taken as criteria. Effectiveness is understood to mean either the potentialities of the classifying functions in dividing a set of objects if the recognition process has not yet been realized, or the probability of an error in recognition resulting from the learning process. A procedure is presented for calculating the effectiveness of decision functions from the standpoint of the total number of possible classifications of a set as realized by this function. Three algorithms are considered for replacing complex decision functions by linear functions. It is shown that the use of nonlinear decision functions is not efficient either in discriminating automata or in the solution of recognition prob-

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USSR

RAMISHVILI, G. S., Tr. In-t sistem upr. AN GruzSSR, 1971, 10, No 1, pp 69-77
lems on computers, and that it is more advantageous to use systems of the
simplest linear functions. V. Mikheyev.

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USSR

CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V.;
MULADZE, V. V.; RAMISHVILI, N. M. (Institute of Cybernetics, Georgian Academy
of Sciences)

"The Nature of the Formation of Interference Patterns in the Process of Self-
Reproduction"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR; December,
1972; pp 565-8

ABSTRACT: The results of a further experimental study of two-dimensional
objects in coherent fields of emission are presented. The nature and con-
ditions of the formation of interference patterns in the process of self-
reproduction -- in particular, the formation of reversed, multiple, and negative
images of the initial objects -- were studied.

In the space beyond an object the structure of interference patterns was
found to be determined by the phase difference $\Delta\phi$ of the interfering beams on
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USSR

CHAVCHANDIZE, et al., Bulletin of the Academy of Sciences of the Georgian SSR; December, 1972; pp 565-8

the given plane of observation. An exact reproduction of the initial object was observed only under the condition $\Delta\phi = 2\pi n$, where $n = 1, 2, 3, \dots$. Under other conditions various stages in the formation of pattern self-reproduction were observed.

The article includes two figures and a table. Figure 1 depicts schematically the formation of an image in the process of self-reproduction; Figure 2a shows the image of an initial object with the number of elements quadrupled; Figure 2b shows the image of an initial object with a 16-fold increase in the number of elements; the table shows the structures that result from various differences in the phase of the observed interference patterns.

There are three bibliographic references.

2/2

USSR

UDC: 621.396.4

RAMLAU, P. N., ANASHKIN, B. T.

"Evaluating the Effectiveness of Some Versions of Standby Provisions for
Radio Relay Lines in Railway Transportation From Their Effect on Communi-
cations Reliability"

Sb. tr. Leningr. in-t inzh. zh.-d. transp. (Collected Works of the Leningrad
Institute of Railway Transportation Engineers), 1971, vyp. 316, pp 91-99
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 55399)

Translation: An evaluation is made of the effect of increased reliability
indices as a result of using automatic 100-percent hot standby provisions
for the equipment at each intermediate point. Four illustrations, four
tables, bibliography of three titles. Resumé.

1/1

- 33 -

USSR

RAMLAU, P. N. ZH.

R

UDC 621.396.2:621.371.1

"Radiosvyaz na zheleznodorozhnom transporte. Uchebnik diva stud. vuzov zh. d. transp. Izd. 4-e, pererabot. i dop. (Radio Communications in Railroad Transportation) Textbook for Students at the Railroad Transportation Universities. Fourth Edition, Revised and Supplemented), Transport Press, 1970, 288 pp (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A92K)

Translation: This book contains an investigation of the elements of a radio communications channel and problems of application of radio devices for organization of public-address, train and radio relay communications in railroad transportation. The book was approved by the Main Administration of Training Institutions of the Ministry of Railways as a textbook for railroad transportation institutes in the specialty of "Automation, Telemechanics and Communications on the Railroads." There are 347 illustrations, six tables and a 59-entry bibliography.

1/1

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USSR

UDC 558.574.6

RAHM, A.G.

"On Exterior Diffraction Problems"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1362-1365

Abstract: A numerical method is presented for calculation of complex natural frequencies of exterior diffraction problems for bodies of arbitrary form. Transcendental equations for approximate calculation of those frequencies are shown. Another method of calculation of complex frequencies small in absolute value is given. It is determined that the terminals of the Green's function of a diffraction problem are nulls of the eigen-values of some integral equation. 9 ref. Received by editors, 12 Apr 1971.

1/1

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USSR

UDC: 517.955.217

Ramm, A. G.

"Eigen-Function Expansion of Non-Self-Conjugate Differential Operators of an External Boundary Value Problem"

Minsk, Differentsial'nyye Uravneniya, No. 4, 1971, pp 737-742

Abstract: This article offers a proof of the theorem of the expansion, in terms of eigen-functions, of the non-self-conjugate Schrödinger operator of the first boundary value problem in the outside boundary region with star-shaped, sufficiently continuous boundaries. The method of the proof consists in integrating the resolvent over the proper contour. The novel aspect of this otherwise well-known proof is the compression of the integrated contour into a spectrum to overcome the difficulties the problem presents. In specifying that the star-shaped boundary be continuous, the author stipulates that it be twice differentiable but does not regard this as a rigorous condition.

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- 10 -

USSR

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UDC 621.396.67.001.5

RAMM, A. G.

"Nonlinear Problems of Antennas Synthesis Theory"

Moscow, AN SSSR, Radiotekhnika i Elektronika, Vol 15, Jan 70, No 1,
pp 21-28

Abstract: This article deals with nonlinear problem of antenna synthesis and presents a method for solving some nonlinear problems including: 1. Synthesis of directional characteristics and determination of current distribution; 2. Characteristic optimization i.e. the determination of the directional characteristic with a maximum slope at the coordinate origin at given level of side lobes; 3. Possible application of the method to the solution of other nonlinear problems. A certain class of functions are described which appear to be the directional characteristics under certain conditions considered here. Certain cases are considered when the synthesis problem may be solved approximately with a given accuracy. Orig. art. has 43 formulas.

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Acc. Nr.: AP0040406

R
Ref. Code: UR 0109

USSR

UDC 621.396.67.001.5 JPI25 50248

RAMM, A. G.

"Nonlinear Problems of Antennas Synthesis Theory"

Moscow, AN SSSR, Radiotekhnika i Elektronika, Vol. 15, Jan 70, No 1,
pp 21-28

Abstract: This article deals with nonlinear problem of antenna synthesis and presents a method for solving some nonlinear problems including: 1. Synthesis of directional characteristics and determination of current distribution; 2. Characteristic optimization i.e. the determination of the directional characteristic with a maximum slope at the coordinate origin at given level of side lobes; 3. Possible application of the method to the solution of other nonlinear problems. A certain class of functions are described which appear to be the directional characteristics under certain conditions considered here. Certain cases are considered when the synthesis problem may be solved approximately with a given accuracy. Orig. art. has 43 formulas.

Reel/Frame
19741863

4

USSR

BELYAYEV, M. F., RAMM, D. V., UDALAYA, V. N.

"Errors of Vibration-Frequency Pressure Gages Caused by Elasticity Imperfections of the Material"

Vibratsionno-chastotn. preobrazovateli. Ch. 1 (Vibration-Frequency Converters. Part 1), Moscow, Energiya Press, 1970, pp 72-88 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11V1395)

Translation: This article contains the results of analyzing an elastic system of vibration-frequency pressure gages from the point of view of errors from elastic imperfections of the gage material. It is demonstrated that a characteristic feature of the elastic system of the investigated sensors is the possibility of decreasing the given type of error by compensating for the inelastic properties of the elastic and sensitive elements of the sensors. The elastic lag of the sensors is analyzed, and the results of measuring it for sensors of various types and sizes are presented. The relation of hysteresis and sensitivity of the characteristic to the procedure for calibrating and checking the sensor is demonstrated. The bibliography has 7 entries.

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Metrology

USSR

UDC: 531.787.083.8.089.6

BELYAYEV, M. F., Ramm, D. V., UDALAYA, V. N.

"Errors of Vibration-Frequency Pressure Pickups Caused by Imperfections in the Elasticity of the Material"

V sb. Vibratsionno-chastotn. preobrazovateli. Ch. 1 (Vibration-Frequency Transducers--collection of works. Part 1), Moscow, "Energiya", 1970, pp 72-88 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 9, Sep 70, Abstract No 9.32.696)

Translation: The authors present the results of an analysis of the elastic system of vibration-frequency pressure pickups from the standpoint of errors due to imperfections in the elasticity of the pickup material. It is shown that a peculiarity of the elastic system of these pickups is the possibility of reducing errors of this class by compensating for the inelastic properties of the elastic and sensing elements of the pickups. An equation is given for the elastic lag of the pickups, and data are given from measurements of this lag in pickups of various standard dimensions. It is shown how the hysteresis and sensitivity of the characteristics are related to the procedure for graduating and checking the pickup. Nine illustrations, two tables, bibliography of seven titles.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--GAS ABSORPTION (REVIEW FOR 1967-1968) -U-

AUTHOR--(02)-RAHM, V.M., GILDENBLAT, I.A.

COUNTRY OF INFO--USSR *R*

SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970, 4(1), 20-47

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS ABSORPTION, MASS TRANSFER, PHASE EQUILIBRIUM, BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0126

STEP NO--UR/0455/70/004/001/0020/0047

CTRC ACCESSION NO--AP0103806

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0103806

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF THE MOST IMPORTANT WORKS IN THE FOLLOWING CATEGORIES: GENERAL PROBLEMS OF ABSORPTION, MASS TRANSFER IN ABSORPTION APP., THE SURFACE OF THE PHASE CONTACT AND THE DRIVING FORCE OF THE TRANSPORT PROCESS DURING ABSORPTION, DESIGN CALCNS. OF ABSORPTION APP., HYDRODYNAMICS AND MASS TRANSFER IN DIFFERENT TYPES OF ABSORBERS, ABSORPTION IN ISOLATED SYSTEMS, AND SOME INDUSTRIAL ABSORPTION PROCESSES.

FACILITY: MOSK. KHIM.-TEKNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--EXPERIMENTAL DETERMINATION OF THE LUMINESCENCE EFFICIENCY OF SOME
ZINC SULFIDE PHOSPHORS -U-

AUTHOR--(03)-NYMH, U.KH., PLEKHANOV, V.G., RAMMO, I.KH.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(1) 153-5

DATE PUBLISHED-- 70

R

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LUMINESCENCE, PHOSPHORUS COMPOUND, ZINC SULFIDE, CADIUM
SULFIDE, COPPER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1797

STEP NO--UR/0368/70/012/001/0153/0155

CIRC ACCESSION NO--AP0054631

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0054631

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LUMINESCENCE EFFICIENCY OF PHOSPHORS ZNS-CU, ZNS (60 MOLE PERCENT)-CDS-CU, AND CDS-CU (10 PRIME NEGATIVE2 AND 2 TIME 10 PRIME NEGATIVE2PERCENT) WERE DETER. FROM ENERGY YIELDS AND LUMINESCENCE SPECTRA. ZNS-CU WAS IRRADIATED AT 365, ZNS (60 MOLE PERCENT)-CDS-CU AT 436, AND CDS-CU AT 546 NM. THE EFFICIENCIES OF ZNS-CU AND ZNS (60 MOLE PERCENT)-CDS-CU WITH PREDOMINANTLY LONG WAVE LUMINESCENCE WERE VERY HIGH; THOSE OF PHOSPHORS WITH SHORT WAVE LUMINESCENCE IN ALL CASES WERE LOWER.

UNCLASSIFIED

Acc. Nr: *AP0044384*

Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1,
pp 118-128

INVESTIGATION OF HISTONE STRUCTURE

Ramm, Ye. I.; Birshteyn, T. M.; Bolotina, I. A.;
Vorob'yev, V. I.; Dmitrenko, L. V.; Nekrasova, T. N.;
Vol'kenshteyn, M. V.
*Institute of Cytology and Institute of High-Molecular Weight
Compounds, Academy of Sciences, USSR, Leningrad*
and Institute of Molecular Biology, Academy of Sciences, USSR, Moscow

The structure of four histone fractions (f_1 , $f_2(a)$, $f_2(b)$, f_3) has been studied by the methods of optical rotatory dispersion, potentiometric titration and viscometry. The analysis of the data obtained made it possible to draw a conclusion that histones are not globular proteins. The dependence of reduced viscosity on the charge of the molecule and the ionic strength of the solution showed that the dimensions of the histone molecules depend to a large extent upon the forces of electrostatic interaction. This suggests that the histone molecules are conformationally flexible and probably exhibit the conformation of a statistical coil with the incorporation of helical regions.

72

REEL/FRAME
19771000

02

AP0044384

The potentiometric titration curves have been obtained for all the histone fractions and have been used for calculating the number of ionizable groups, for determining their pK' and the change in the mean overall charge of the molecules with the pH alteration of the medium. The effect of pH and the ionic strength of the solution on the α -helix content of various histone fractions was studied. The data obtained were compared and a conclusion was drawn about the non-uniform distribution of the charged groups in the histone molecules. On one hand, histones contain at neutral pH coil shaped sequences enriched with basic amino acid residues with high density of the positive charge and on the other hand, regions capable to form helical structures and containing both acidic and basic amino acid residues. A model is proposed describing the structure of histones. The important differences between histone fractions were shown to exist mainly due to the distribution of the charges along the chain.

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19771001

bc

USSR

UDC 532.528

YERSHOV, N. S., OVSYANNIKOV, B. V., and RAMODINA, V. V.

"Investigation of Cavitation Development in Axial Screw Forepumps by Means of High-Speed Photography"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 2, 1972, pp 173-175

Abstract: Results are presented of high-speed photography of the cavitation zones in an axial screw forepump with change of the backwater at the intake. The experiments were conducted with ordinary tap water and with deaerated water at two flow rates. Analysis of the obtained photos shows that cavitation with liberation of air differs greatly from cavitation caused purely by water vapor. The experimental results make it possible to obtain the development pattern of cavitation zones that form in axial forepumps. 2

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USSR

UDC: 681.325

RAMONIS, A. A., SHUL'SKIY, P-V. M.

"Method of Conversion of Sine-Cosine Signals of a Raster Linear and Angular Displacement Sensor"

USSR Author's Certificate Number 305500, filed 9/07/70, published 29/07/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 3, 1972, Abstract No 3 A273 P)

Translation: A method is suggested for conversion of the sine-cosine signals of a raster linear and angular displacement sensor to a signal, the phase shift of which is proportional to the displacement. In order to increase the accuracy of the conversion, the sine and cosine signals of the raster sensor modulate the corresponding signals of the carrier frequency, phase shifted by one quarter period, in amplitude and in phase, with subsequent addition and filtration of the carrier frequency.

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USSR

VORONOV, V. D., KAZAKOV, A. A., RAMOSHCHENKOV, N. A.

UDC: 621.394.142:621.376.56

"A decoding Device for Cyclic Majority Binary Codes with Redundancy When There
is Multiple Repetition of Messages"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5,
1970, p 39, patent No 261460, filed 14 Oct 68

Abstract: This Author's Certificate introduces a decoding device for cyclic
majority binary codes with redundancy when there is multiple repetition of mes-
sages. The unit contains a shift register, adders, a distributor and counters.
As a distinguishing feature of the patent, the device is designed for more com-
plete utilization of the correcting capacity of the code with improved resistance
to interference in reception. The mod-two outputs of the adder in the majority
decoder are series-connected through the distributor to the majority check coun-
ters for all repetitions, the number of such counters being equal to the number
of information symbols. The values of the information symbols are determined
from the majority of the results of these checks.

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1/2 024

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

TITLE--RADIOECOLOGICAL PARAMETERS OF THE CHAIN, LICHEN, NORTHERN DEER, MAN
-U-

AUTHOR--(05)-RAMZAYEV, P.V., TROITSKAYA, M.N., IBATULLIN, M.S., MOISEYEV,

A.A., NIZHNIKOV, A.I.

COUNTRY OF INFO--USSR, ARCTIC OCEAN

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 6, PP 36-42

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CESIUM ISOTOPE, RADIOACTIVE WASTE, ECOLOGY, GEOGRAPHIC
LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0925

STEP NO--UR/0240/70/000/006/0038/0042

CIRC ACCESSION NO--AP0126584

UNCLASSIFIED

2/2 024

CIRC ACCESSION NU--AP0126584

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0 ABSTRACT. ON THE BASIS OF INVESTIGATIONS
CARRIED OUT FOR A PERIOD OF FIVE YEARS (1962-1966) ALONG THE SOVIET
COAST OF THE ARTIC OCEAN FRUM CHUKOTKA TO THE KOLA PENINSULA THE AUTHORS
DETERMINED THE EXTENT OF MIGRATION OF RADIONUCLIDES, ESPECIALLY THAT OF
CS PRIME137 IN THE CHAIN "LICHEN, NORther-Deer, MAN". THE FINDINGS MAKE
IT POSSIBLE TO PREDICT THE CONTAMINATION LEVEL OF THE CHAIN. THE
AUTHCRS POINT TO THE NECESSITY OF WIDER RADIOPHYSICAL INVESTIGATION OF
THE NORTHERN CHAIN, AS THE DOSES ABSORBED IN ITS LINKS APPROACH THE
EXISTING MAXIMAL PERMISSIBLE RADIOACTIVE DOSES. FACILITY:
ZDRAVOKHRANENIYA RSFSR.

UNCLASSIFIED

USSR

UDC 621.226

SMIRNOV, S. A., ~~RAN~~, E. N., and PAN'KOV, M. S., Institute of
Geology and Geophysics of the Siberian Department of the Academy
of Sciences USSR

"Control Valve of the Piston Motion of a Hydraulic Press
up to 2 kbar"

Moscow, Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 72,
pp 183-184

Abstract: A power switchboard of valve-type and its operation
are described by reference to the flow sheet and the layout. The
device, which was tested up to 1700 bar pressure, consists of
four valves enclosed in a common body and a cam-type mechanism
which makes it possible to open the valves in pairs. The device
differs from known constructions of similar type by the presence
of an abutment screw allowing smoothly to graze the high pressure
before the change-over of the valves. The abutment screw is located
on the slewing axis so that at the two available valve posi-
tions it can push in turn only the grazing valves. A multiposi-
tional control valve can be developed analogously. Two illustr.,
two biblio. refs.

1/1

172 010

TITLE--GAS CHROMATOGRAPHIC SEPARATION OF UNSATURATED HYDROCARBONS USING
AGNO SUB3 SOLUTIONS AS STATIONARY PHASES. 2. THE EFFECT OF SOLVENT AND
AUTHOR--(03)-RANG, S., EISEN, D., KUNINGAS, K.

COUNTRY OF INFO--USSR

R

SOURCE--IZVESTIYA AKADEMII ANUK ESTONSKOY SSR, KHIMIYA, GEOLOGIYA, 1970,
VOL 19, AK 2, PP 99-103
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS CHROMATOGRAPHY, UNSATURATED HYDROCARBON, SILVER NITRATE,
SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PRUXY REEL/FRAME--1992/1554

CIRC ACCESSION NO--AP0112548

STEP NO--UR/0470/70/019/002/0099/0103

UNCLASSIFIED

272 010

CIRC ACCESSION NO--AP0112548

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN OUR PREVIOUS WORK, EFFECTS OF WORKING PARAMETERS ON COLUMN EFFICIENCY WERE DISCUSSED (PRIME1). IN THE PRESENT PAPER, EFFECTS OF SOLVENT AND OF AGNO SUB3 CONCENTRATION ON COLUMN SELECTIVITY ARE REPORTED. THE REAGENTS, APPARATUS AND PROCEDURE ARE DESCRIBED IN (PRIME1).

UNCLASSIFIED

89

1/2 012

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--GAS CHROMATOGRAPHIC SEPARATION OF UNSATURATED HYDROCARBONS, USING
SILVER NITRATE SOLUTIONS AS STATIONARY PHASES. I. EFFECT OF OPERATING
AUTHOR--KUNINGAS, K., RANG, S., EYSEN, O.

COUNTRY OF INFO--USSR

SOURCE--ESTI NSV TEAD. AKAD. TIOM., KEEM., GEOL. 1970, 19(1), 30-5

DATE PUBLISHED-----70

R

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, CHEMICAL SEPARATION, ISOMER, MOLECULAR
STRUCTURE, GAS CHROMATOGRAPHY, CHROMATOGRAPHIC SEPARATION, OCTANE,
NONANE, DECANE, THERMAL EFFECT, ALIPHATIC ALKANE, ALIPHATIC ALKENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1067

STEP NO--UR/0470/70/010/001/0030/0035

CIRC ACCESSION NO--AP0104465

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104465

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GAS CHROMATOGRAPHIC SEPNs. OF AGNO SUB3 SOLNS. (IN ETHYLENE GLYCOL, DIETHYLENE GLYCOL, POLYETHYLENE GLYCOL 400 (I), DECANE,1,10,DIOL, HEXANE,1,6,DIOL, BUTANE,1,4,DIOL (II), BUTANE,1, 3,DIOL, BUTANE,2,3,DIOL, OR 2,BUTENE,1,4,DIOL) AS THE STATIONARY PHASES, WAS STUDIED. CHROMOSORB SUPPORTS, HE CARRIER GAS, TEMP., AND THE HE FLOW RATE ON THE COLUMN PERFORMANCE ARE DISCUSSED. COLUMNS CONTG. AGNO SUB3 IN I OR IN II GAVE THE BEST SEPNs. OPTIMUM TEMPS. WERE 40-60DEGREES, 60-80DEGREES, AND 80-100DEGREES FOR ISOMERS OF C SUB8 MINUS SUB9, C SUB10 MINUS SUB11, AND C SUB12 MINUS SUB13 ALKENES, ANAL. OF SYNTHETIC DECENE AND DODECENE ISOMERIC MIXTS. ON AN AGNO SUB3-II COLUMN AT 80 AND 100DEGREES, RESP.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--GAS CHROMATOGRAPHIC SEPARATION OF UNSATURATED HYDROCARBONS, USING
SILVER NITRATE SOLUTIONS AS STATIONARY PHASES. 1. EFFECT OF OPERATING
AUTHOR--KUNINGAS, K., RANG, S., EYSEN, O.

COUNTRY OF INFO--USSR.

SOURCE--ESTI NSV TEAD. AKAD. TIDM., KEEM., GEOL. 1970, 19(1), 30-5
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, CHEMICAL SEPARATION, ISOMER, MOLECULAR
STRUCTURE, GAS CHROMATOGRAPHY, CHROMATOGRAPHIC SEPARATION, OCTANE,
NONANE, DECANE, THERMAL EFFECT, ALIPHATIC ALKANE, ALIPHATIC ALKENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1067

STEP NO--UR/0470/70/019/001/0030/0035

CIRC ACCESSION NO--AP0104465

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0104465

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GAS CHROMATOGRAPHIC SEPNs. OF GEOMETRIC ISOMERS OF C SUB8 MINUS SUB13 STRAIGHT CHAIN ALKENES, BY USING AGNO SUB3 SOLNS. (IN ETHYLENE GLYCOL, DIETHYLENE GLYCOL, POLYETHYLENE GLYCOL 400 (I), DECANE, 1,10,DIOL, HEXANE, 1,6,DIOL, BUTANE, 1,4,DIOL (II), BUTANE, 1, 3,DIOL, BUTANE, 2,3,DIOL, OR 2,BUTENE,1,4,DIOL) AS THE STATIONARY PHASES, WAS STUDIED. CHROMODORB SUPPORTS, HE CARRIER GAS, AND A THERMAL COND. DETECTOR WERE USED. THE EFFECTS OF THE SAMPLE SIZE, TEMP., AND THE HE FLOW RATE ON THE COLUMN PERFORMANCE ARE DISCUSSED. COLUMNS CONTG. AGNO SUB3 IN I OR IN II GAVE THE BEST SEPNs. OPTIMUM TEMPS. WERE 40-60DEGREES, 60-80DEGREES, AND 80-100DEGREES FOR ISOMERS OF C SUB8 MINUS SUB9, C SUB10 MINUS SUB11, AND C SUB12 MINUS SUB13 ALKENES, RESP. RELATIVE ERRORS WERE LESS THAN OR EQUAL TO 3.5PERCENT FOR THE ANAL. OF SYNTHETIC DECENE AND DODECENE ISOMERIC MIXTS. ON AN AGNO SUB3-II COLUMN AT 80 AND 100DEGREES, RESP.

UNCLASSIFIED

USSR

RANI, O.

"Duality in Quadratic Programming"

Z. Angew. Math. und Mech. [German], 1972, Vol 52, No 6, pp 314-316 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V689 by M. Dubson).

Translation: A brief note dedicated to generalization and detailization of duality of a classical problem (see the work of Kottel, RZhMat, 1965, 3V209)

$$\min \left\{ \frac{1}{2} x' Cx + \frac{1}{2} y'Dy + p'x | A_1x + Dy \geq -b, x \geq 0 \right\}$$

$$\max \left\{ -\frac{1}{2} u'Cu - \frac{1}{2} v'Dv - b'v | A_1'v - Cu \leq p, v \geq 0 \right\}$$

for the case of arbitrary matrix A_2 :

$$\min \left\{ \frac{1}{2} x' Cx + \frac{1}{2} y'Dy + p'x | A_1x + A_2y \geq -b, x \geq 0 \right\}$$

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USSR

"APPROVED FOR RELEASE: 09/17/2001

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RANI, O., Z. Angew. Math. und Mech., 1972, Vol 52, No 6, pp 314-316.
and

$$\max \left\{ -\frac{1}{2} u' C u - \frac{1}{2} w' D w - b' v \mid A_1' u - C u \leq p, \right.$$
$$\left. A_2' v + D w = 0, v \geq 0 \right\}$$

2/2

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APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002202620005-2"

USSR

UDC: 536.581

YURSHEVICH, V. V., GUTOVSKIY, O. K., RANKIS, G. Zh.

"Laboratory Thermostat for the 68-670° K Range. Methods of Measurement and Stabilization of Temperature"

Vopr. Elektrodinamiki i Teorii Tsepely. Vyp. 6 [Problems of Electrodynamics and the Theory of Circuits. 6th Edition -- Collection of Works], Riga, 1972, pp 103-112 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No. 3, 1973, Abstract No 3.32.840), by V. S. K.

Translation: Structural diagrams are presented for thermostat for temperatures below -196° C; from +10° to -196° C; from +30 to +400° C, as well as structural diagrams of their parts (evaporator voltage regulator, manostat). A platinum resistance thermometer made in the form of a spiral placed in a capillary of Pyrex glass is used to measure temperatures from -196° C to +400° C. The thermal inertial of the thermometer is not over 0.5-0.8 s. The calibration of the thermometer after aging is based on the melting point of ice and the boiling point of water. The temperature measurement error is not over ±0.02° C. Stabilization of temperature in the -180° C to +10° C interval is achieved by positional regulation and depends on the intensity of the flow of liquid nitrogen vapor, determined by the power dissipated by the evaporator in a standard metal Dewar vessel. Temperatures
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USSR

Yurshevich, V. V., Gutovskiy, O. K., Rankis, G. Zh., Vopr. Elektrodinamiki
i Teorii Tsepey. Vyp. 6, Riga, 1972, pp 103-112.

read from the logometer scale of a radio-isotope thermal regulator used for temperature stabilization. Liquid nitrogen is used directly to produce a temperature of about -196° C. Temperatures below -196° C are achieved by evacuation of nitrogen vapors. 4 figures, 7 biblio. refs.

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- 101 -

USSR

UDC: 621.317.761(088.8)

OZOLIS, Ya. Ya., RANKIS, G. Zh., Riga Polytechnical Institute
"A Frequency Meter With Magnetic Tuning"

USSR Author's Certificate No 259270, filed 23 Oct 67, published 24 Apr 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A333 P)

Translation: This Author's Certificate introduces a frequency meter with magnetic tuning and panoramic display which contains a reference frequency oscillator, a ferrite resonator, a current generator for magnetizing the resonator, a detector head, detector current amplifier and frequency display module. As a distinguishing feature of the patent, the accuracy of the proposed meter is improved by connecting the input of the SHF detector in the frequency display module to the ferrite resonator, and connecting the output through an amplifier and electronic commutator to a pulse voltmeter.
E. L.

1/1

USSR

UDC: 621.317.411.2

YURSHEVICH, V. V., RANKIS, G. Zh., GUTOVSKIY, O. K.

"Investigation of the Magnetic Spectra of Ferrites Over a Wide Range of Frequencies and Temperatures"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 153-154 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A365)

Translation: A procedure and installation are developed for taking the magnetic spectra of ferrites in the frequency range from 0.1 to 10,000 MHz and at temperatures from -200 to +400°C. Measurements were made on toroidal specimens for 50 Ω coaxial line. A system is described for maintaining temperature with a precision of ±0.5°C. On frequencies above 50 MHz, permeability was measured with respect to the input impedance of a short-circuited section of coaxial line, while a Q-meter was used on frequencies below 50 MHz. It was found that the behavior of the spectrum for nickel-zinc ferrites changes at temperatures below +100°C: the dispersion spectrum changes to a triple dispersion spectrum. E. L.
1/1

USSR

UDC: 621.317.411

GREVE, Yu. O., STRAUTS, A. S., RANKIS, G. Zh.

"Investigation of the Magnetic Spectra of Ferrites Subjected to a Magnetizing Field and Mechanical Stresses in Different Directions"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 125-126 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A358)

Translation: On the basis of a method previously developed by the authors for measuring complex permittivities and components of the tensor of magnetic permeability of ferrites and dielectrics with the use of a symmetric strip line, an installation is constructed for studying the magnetic spectra of ferrites in a band from a few tens of MHz to 10,000 MHz under the effect of an external magnetic field or mechanical stresses. The installation consists of a universal electromagnet in whose gap the strip line is located with the specimen of ferrite and a pickup of mechanical stresses. One illustration, bibliography of five titles. N. S.

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1/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--ON PRINCIPLES OF AUTOMATIC CLASSIFICATION OF METEOROLOGICAL UNITS
-U-

AUTHGR-(02)-GRUZA, G.V., RANKOV, YE.YA.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 2, PP 12-22

DATE PUBLISHED-----70

R

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--SYNOPTIC METEOROLOGY, WEATHER FORECAST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1224

STEP NO--UR/0050/70/000/002/0012/0022

CIRC ACCESSION NO--AP0103112

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0103112

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TASK OF AUTOMATIC
CLASSIFICATION OF SYNOPTIC PROCESSES AND METEOROLOGICAL FIELDS IN
WEATHER PREDICTION PROBLEMS IS DISCUSSED. A PROGRAM OF IMPLEMENTING
THE CLASSIFICATION OF METEOROLOGICAL UNITS ON A COMPUTER IS DESCRIBED.
RESULTS ARE GIVEN OF A NUMERICAL EXPERIMENT ON CLASSIFYING FIELD
SECTIONS OF 500 MB CHART OVER THE NORTHERN HEMISPHERE.

UNCLASSIFIED

USSR

UDC 620.178.32

RANNAT, E. I., and INGERMA, A. I.

"Experimental Device for Testing Specimens Under Axial Alternating Loading Cycles"

Tr. Tallin. politekhn. in-ta (Works of Tallin Polytechnic Institute), 1970,
A, No 294, pp 95-98 (German summary) (from RZh-Metallurgiya, No 3, Mar 71,
Abstract No 3I909 by authors)

Translation: The article describes the design and operating principle of a testing device designed to test metals with a given cyclic load according to a tension-compression scheme. The device makes it possible to obtain loads of any asymmetry from pulsating tension to pulsating compression. Two illustrations. Bibliography with one title.

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1/2 014

UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ACCURACY OF A DETERMINATION OF ATOM COORDINATES IN STRUCTURAL
NEUTRONOGRAPHY -U-
AUTHOR-(03)-DATT, I.D., RANNEV, N.V., OZEROV, R.P.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 25-30

DATE PUBLISHED-----70

R

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL LATTICE STRUCTURE, NEUTRON DIFFRACTION, FOURIER SERIES

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0159

STEP NO--UR/0070/70/015/001/0025/0030

CIRC ACCESSION NO--AP0048451

UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0048451

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULAS FOR DETG. THE ACCURACY OF AT. COORDINATES ON THE FOURIER MAPS OF NUCLEAR D. ARE GIVEN FOR NEUTRON STRUCTURAL ANAL., TAKING INTO ACCOUNT THE INTERRUPTION OF THE FOURIER SERIES. THESE FORMULAS ARE DISCUSSED FOR THE CASE OF SPHERICALLY SYM. ATOMS IN CRYSTALS WITH MONOCLINIC OR ORTHORHOMBIC SYMMETRY.
FACILITY: NAUCH.-ISSLED. FIZ.-KHIK. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.317.2

RANSKIY, V. I.

"The Radio Amateur's Measurement Laboratory"

Izmeritel'naya laboratoriya radiolyubitelya (cf. English above), "Energiya",
1971, 168 pp, ill. 51 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No
6A256 K)

Translation: The book presents a set of simple radio measuring instruments developed by the author which can be made and put to practical use by radio amateurs. Detailed information is given on the operating principle, circuits and construction of the proposed instruments, and recommendations are given on the procedure for adjusting and using them. The main part of the book is preceded by a brief exposition of the fundamentals of radio measurement technology, and an explanation of the part played by measurements in radio amateur practice. The book is written for radio amateurs in general, and may also be of use to the directors of radio clubs. Résumé.

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AA9024756

CA 7/69

UR 0482

5011e Anionic flotation of phosphorite from ores. Aleinikov,
N. A.; Vinokurov, A. I.; Vazykov, L. A.; Dryakhlova, M. D.;
Rants, G. F.; Shuvalova, N. K. (Mining-Metallurgical Institute,
Academy of Sciences, Kola) U.S.S.R. 236,372 (Cl. B 03d), 03
Feb 1969, Appl. 04 Sep 1967; From *Otkrytiya, Izobret., Prom.*
Obratnye Znaki 1969, 46(7), 5. White water is used for
the anionic flotation of phosphorite from ores. An emulsion of
an acid soap of carboxylic acids and petroleum hydrocarbons is
used as a reagent.

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USSR

UDC 669.141.3:620.178.3

FRANYUK, V. A., and RANTSEVICH, V. B., Department of Physics of Non-destructive Control of the Academy of Sciences Belorussian SSR

"Investigation of the Dispersion of Energy in Carbon Steels in the Fatigue Process"

Moscow, Zavodskaya Laboratoriya, Vol 38, No 12, 1972, pp 1503-1505

Abstract: A study of the dispersion energy was made by the method of measuring hysteresis losses and registering the emissive heat power on steel 45 specimens annealed in vacuum at 650°C. Fatigue tests for cyclic tension-compression were made on the TsDM Pu-10 hydraulic pulsator machine at a 750 cycles/min loading frequency. The cimens show a similar character of changing. The application of infrared radiation pyrometers, which determine the temperature of a specimen by the power of its natural electromagnetic radiation, makes it possible to carry out high-precision non-destructive investigations. Two figures, one table, three bibliographic references.

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USSR

UDC 620.178.3:536.5

FRANYUK, V. A., FANTSEVICH, V. B., and MAL'KO, I. I., Physics Branch of
Indestructive Control of the Academy of Sciences, Belorussian Soviet Socialist
Republic

"Radiation Method of Measuring the Temperature of Metal During
the Process of Fatigue Tests"

Moscow, Zavodskaya Laboratoriya, Vol 37, No 12, 1971,
pp 1476 -1477

Abstract : A method is suggested and the installation has been developed for remote temperature measuring of individual surface parts of the investigated specimen by cyclic tests. Owing to the scanning system, the temperature distribution on the specimen can be obtained in the form of oscillograms which are recorded on a film. The range of measured temperatures is 25 - 300 °C, the measuring accuracy is ± 1 °C. The determination time of the endurance limit is considerably shortened because the speed of temperature increase is being determined by the magnitude of the applied voltage. Two illustr., three bibliog. refs.

- 145 -

USSR

UDC 550.343.62

GEL'FAND, I. M., Corresponding Member of the USSR Academy of Sciences, GUBERMAN,
SH. A., IZVEKOVA, M. A., KEYLIS-BOROK, V. I., RANTS'MAN, YE. YA.

"High Seismicity Criteria"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 6, 1972, pp 1317-1320

Abstract: A study was made of the problem of finding points in the eastern part of Central Asia where earthquakes with a magnitude of $M > 6.5$ are possible. A figure is presented showing that all the epicenters of the 22 such earthquakes occurring since 1883 lie at disjunctive nodes with active movements in modern times (the last ~25 million years, beginning with the Neogene). It is proposed that earthquakes with $M > 6.5$ can occur only at such nodes, in particular, at the 16 nodes where they have already occurred. The problem then reduces to finding at which of the remaining 25 nodes earthquakes with $M > 6.5$ are possible. The problem was solved by means of the KORA-3 recognition program [N. M. Bongart, et al., Geologiya i geofizika, No 6, 1966; "Complex Interpretation of Geophysical Data on Computers," Tr. Moskovsk. inst. neftekhimich. i gazovey prom. zh., I. M. Gubkina, No 62, 1965]. A figure is presented showing the variation of the recognition results during the course of seismic history. The conclusion is drawn that earthquakes with $M > 6.5$ are possible at fixed nodes: Fayzabad, Alayskiy, Zaalayskiy, Obi-Khingou-Surkheb, Sarydzhab and Kun'lun'. The

JSSR

GEL'FAND, I. M., et al., Doklady Akademii Nauk SSSR, Vol 202, No 6, 1972, pp
1317-1320

reliability of this conclusion was evaluated experimentally. The six nodes
have one common feature -- they are all located in the zones of latest con-
trast movements at the boundaries of mountainous areas.

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- 31 -

USSR

UDC: 519.2

KAGAN, A. M., LINNIK, Yu. V., RAO, S. R.

"Characterization Problems of Mathematical Statistics"

Kharakterizatsionnyye zadachi matematicheskoy statistiki (cf.
English above), Moscow, "Nauka", 1971, 656 pp, ill. 2 r. 50 k.
(from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V224 K)

[No abstract]

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USSR

UDC 616.24-008.4;616.24-003.662/656.6

RAPASH, B. YA., Doctor of Medical Sciences and PAVLENKO, V. I., (Kharkov),
Ukrainian Central Scientific Research Institute of Work Capacity and Organiza-
tion of the Work of Invalids

"Dynamics of Insufficiency of External Respiration and Reactivity of the Basic
Nervous Processes in Stage One Anthracosilicosis"

Kiev, Vrachebnoye Delo, Vol 53, No 3, 1971, pp 135-138

Abstract: The effect of insufficiency of external respiration on the pulmonary
ventilating system, hemodynamics, and reactivity of the basic cortical nervous
processes was studied in 47 patients with stage one anthracosilicosis. All
investigations were conducted against a background of basal metabolism, with the
patients examined first at rest, and then after controlled exercises on an
exercycle. The patients were initially examined in 1964-1965 and again in
1968-1969. Both examinations revealed only slight subjective changes charac-
teristic of patients with pneumoconiosis. In the later examination, however,
a significant increase in the ventilating capacity of the pulmonary system
serving to compensate for the oxygen deficiency caused by anthracosilicosis was
established; the increased ventilating capacity of the pulmonary system was
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USSR

RAPASH, B. YA., et al., Vrachebnoye Delo, Vol 53, No 3, 1971, pp 135-138

reflected in the hemodynamics by an increased supply of oxygen to the blood and the consequent increase of blood oxygenation; reactivity of the basic nervous processes, determined by the verbal reaction method, was marked by an insignificant elevation of the force of the excitation process. The thought is that this insignificant elevation in the force of excitation could hardly be wholly responsible for the efficient compensatory reaction affecting the pulmonary ventilating functions and hemodynamics, and that other brain formations, the vegetative nervous system in particular, participate in the mechanism of compensation for respiratory insufficiency.

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COLGEN

PTD:ETERNEVIES

26. USSR
 RAPATSEVICH, Ye. A. "Psychology Laboratory of MIP MP BSSR, [Sovietistic Research Institute for Psychology] of the Ministry of Education, Belarusian SSSR, Minsk
 "A Device for Investigating Decision Behavior Under Conditions of Controlled Uncertainty"

29 Oct 71

SI
 S: flatbau press digest
 Abstract: A Oct 1971
 RAPATSEVICH, Ye. A. Psychologic Laboratory of MIP MP BSSR, [Sovietistic Research Institute for Psychology] of the Ministry of Education, Belarusian SSSR, Minsk
 "A Device for Investigating Decision Behavior Under Conditions of Controlled Uncertainty"

Roszon, Voprosy Psichologii, No 2, May-Jun 71, pp 146-148
 Abstract: The instrument is large and complex, containing several components. There is a mechanical programmed device which can select a sequential pattern of lighting for ten lamps. The subject has a control panel he can use to change this pattern; the experimenter has a separate panel which can induce further changes. In some cases the subject is faced for his ability to control the ignition of the lamps, learning by experience the sequence to be expected and the proper position of his control at each step. In other cases the experimenter's panel is given to another subject (up to four separate panels can be used); the subjects are then required to coordinate their activities without conversation, controlling the sequence of lamp illuminations to achieve some desired pattern.

The machine has a limited capability for recording the subjects' actions and 1/2 modulating its display on the basis of previous, as well as current, switch settings.

COPY

RAPATSEVICH, Ye. A. "Psychology Laboratory, No 2, May-Jun 71, pp 146-148
 It also records all actions on paper tape. The article includes a schematic diagram and a drawing of the device.

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USSR

UDC 531.787.913.087.92

KSENGOFINTOV, N.YE., PARLOVA, T.T., MIRONOV, A.I., SINYAKOV, I.I.,
BAPATSKAYA, I.V.

"Tensotransducers Based On Silicon-Spinel"

V sb. Pribory tochnoy mekh. i tekhnol. priborost. (Devices Of Precision
Mechanics And Technology Of Instrument Construction--Collection Of Works),
Moscow, 1971, pp 33-38 (from RZh:Elektronika i vysye priznacheniya, No 2, Feb 72,
Abstract No 23252)

Translation: Tensotransducers [tensopreobrazovatel'] (T) based on Si-spinel
were produced by build-up on spinel wafers (ground, polished, and annealed in
a H₂ flow at a 1200°C temperature) of a monocrystalline layer of Si by pyroly-
sis of the spinel. With the aid of photolithography, tensoresistors were pro-
duced on the structure prepared, the outlets to which were produced by thermo-
compression. The T produced had the characteristics: resistance, 480 ohm;
°C⁻¹; coefficient of resistivity, 0.01 ohm·cm; temperature coefficient of resistance, 9.1 x 10⁻⁴
orientation) 55 ± 9%. 1 ill. 2 tab. 2 ref. V.B.

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USSR

KSENOFONTOV, M.YE., RAPATSKAYA, I.V.

UDC 531.787.912.087.92

"Tensotransducer Based On Silicon-Sapphire-Molybdenum"

V sb. Pribory tochnoy mekh. i tekhnol. priborostr. (Devices Of Precision Mechanics And Technology Of Instrument Construction), Moscow, 1971, pp 39-40 (from RZh:Elektronika i yeye prilozheniye, No 2, Feb 72, Abstract No 23281)

Translation: Tensotransducers [tenzopreobrazovatel'] (T) based on Si--sapphire--Mo were produced by growing from a melt on wafers of polycrystalline Mo, of a dielectric layer of sapphire up to 7 micrometer thick, on which by pyrolysis of silane a film was grown of n-type Si with a resistivity of 0.5 ohm.cm and a thickness of 10 micrometer. Tensoresistors were produced on the structure obtained by the lithographic method, the cutlets to which were produced by thermocompression of Au 50 micrometer in diameter with subsequent soldering of Cu wires. The T obtained had the characteristics: resistance, 3800 ohm; coefficient of tensosensitivity, 10 ± 70 ; temperature coefficient of resistance $6.8 \times 10^{-4} \text{ }^{\circ}\text{C}^{-1}$; temperature coefficient of tensosensitivity, $1.9 \times 10^{-2} \text{ }^{\circ}\text{C}^{-1}$. In comparison with T based on Si-sapphire and Si-spinel the T described is able to emit greater power. In view of the closeness of the expansion coefficient of sapphire and Mo, the substrate of the T is practically free from mechanical stress. 1 ill. 1 ref. V.e.

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- 814 -

- USSR

Nitrogen Compounds

UDC 632.95

FOKIN, A. V., KOLOMIYETS, A. F., STUDNEV, YU. N., and RAPKIN, A. I.

"Process for the Preparation of the β -Rhodanine Ethyl Esters of Carboxylic Acids"

USSR Author's Certificate No 350-783, filed 30 Jul 70, published 20 Sep 72
(from Referativnyy Zhurnal -- Khimiya, No 11(II), 1973, Abstract No 11N579P
by T. A. Belyayeva)

Translation: A process is described for the preparation of the β -rhodanine ethyl esters of carboxylic acids by the reaction of trimethyl- β -rhodane-thoxysilane (I) with an acyl halide at 0-120° in an organic solvent. For example, 7.2 g of FClCHCOCl are added 8.8 g of (I), heated with the simultaneous distilling of tri-methylchlorosilane and yielding 9.6 g of the β -rhodanine ethyl ether of fluorochloroacetic acid. The boiling point is 109-110°C/1 mm, the n_{20}^D is 1.4821, d_4^{20} is 1.4180. 5.4 g of the trimethyl-chlorosilane is added to a suspension of 5.3 g of KSCN in 35 ml of acetone, stirred at about 20° for two hours, to which is added 2.6 g of ethylene oxide. The reaction mixture is allowed to sit for 1 hour; the excess ethylene oxide is removed; the mixture is filtered and 6.3 g of $\text{KClCH}_2\text{COCl}$ is added to the filtrate. It is then allowed to sit for 1 hour at 20°. 8.3 g of the β -rodane

USSR

FOKIN, A. V., et al., USSR Author's Certificate No 350783, filed 30 Jul 70,
published 20 Sep 72

ethyl ethers of monochloroacetic acid is separated. The product has a boiling point of 119° at 1 mm, n^{20}_D of 1.5125 and a d_4^{20} of 1.3857. The following compounds were also prepared. The numbers given are the boiling point in °C/mm or the freezing point in °C, the n^{20}_D , and d_4^{20} ; $\text{MeC(O)CH}_2\text{CH}_2\text{SCN}$, 72 - 3/1, 1.4765, 1.1891; $2,4\text{-Cl}_2\text{C}_6\text{H}_3\text{OCH}_2\text{C(O)OCH}_2\text{SCH}_3$, 35 - 6, -, -; $\text{CCl}_3\text{C(O)OCH}_2\text{CH}_2\text{SCN}$, 44 - 5, -, -; $\text{CF}_3\text{C(O)OCH}_2\text{CH}_2\text{SCN}$, 93 - 4/9, 1.4174, 1.4160; $\text{CF}_3\text{CF}_2\text{C(O)OCH}_2\text{CH}_2\text{SCN}$, 84 - 5, -, -; and $\text{PhC(O)OCH}_2\text{CH}_2\text{SCN}$, 137 - 8/1, 1.5631, 1.1960.

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- 39 -

USSR

UDC: 51

FRIDMAN, A. A., LITVAK, B. G., RAPPOPORT, A. M.

"Absolutely Integral Linear Programming Problems"

Moscow, Issled. po diskretnoy mat.---sbornik (Studies in Discrete Mathematics---collection of works), "Nauka", 1973, pp 27-40 (from RZh-Matematika, No 8, Aug 73, abstract No 8V507 by Yu. Finkel'shteyn)

Translation: Papers by B. G. Litvak and A. M. Rappoport (RZhMat, 1971, 1V447, 8V592) investigated the reduction of linear programming problems having a whole-number optimum solution for any whole-number vectors of limitations (absolutely integral problems) to extremum problems on networks (on circulation or flow of minimum cost). In RZhMat, 1971, 1V447 the authors introduced the concepts of reducibility of problems, M-families of vectors, intermediate representation and representation of the flow along the arc of a network, and also the concept of the problem of circulation of minimum cost $T(P)$ corresponding to the linear programming problem P . It was found, in particular, that: a) Linear programming problem P has a corresponding problem on circulation of minimum cost $T(P)$ if and only if the rows of its matrix of limitations form an M-family. b) If the rows of

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USSR

Fridman, A. A. et al., Issled. po diskretnoy mat., "Nauka", 1973, pp
27-40

the matrix of limitations of problem P form an M-matrix, then P reduces to a problem on circulation of minimum cost, and specifically to $T(P)$.

In this paper, with certain natural assumptions relative to problems on circulation of minimum cost, the necessary and sufficient conditions are found for reducibility of linear programming problems to a problem of circulation of minimum cost, and a more extensive class of absolutely integral problems which permit network formulation is described.

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USSR

UDC 51

LITVAK, B. G. and RAPPOROT, A. M.

"On the Reduction of Several Linear Programming Problems to a Problem of the Minimum Cost Flow"

V sb. Optimiz. Issled. operatsiy. Bionika (Optimization and Operations Research. Bionics -- collection of works) Moscow, Nauka, 1973, pp 76 - 84
(from RZh Matematika No 12, 1973, item No 12 V540)

Translations: This continues a series of works by these authors (see, for example, RZh Mat, 1971, 1 V447; 8 V592; 1973, 1 V703; 1970, 7 V418; 1971, 2 V475). It is known that the algorithms for solving the minimal cost flow problem are simpler than algorithms for solving the general problem of linear programming. The authors are investigating the possibility of reducing linear programming problems to minimal cost flow problems. For several problems they have succeeded in finding the necessary and sufficient conditions of such reduction. This is true, in particular, of the transport problem with supplementary limitations of a certain type.

Abstract by Yu. Finkel'shteyn.

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USSR

FRIDMAN, A. A., LITVAK, B. G., RAPPORPORT, A. M.

"Absolutely Integer Problems in Numerical Programming"

Issled. po diskretnoy mat. [Studies in Discrete Mathematics -- Collection of Works], Moscow, Nauka Press, 1973, pp 27-40 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V507 by Yu. Finkel'

Translation: Earlier works by B. G. Litvak and A. Am. Rappoport (RZHMat, 1971, 1V447; 8 V592) have studied the reduction of linear programming problems with integer optimal solutions with any integer vectors of limitations (absolutely integer problems) to extreme problems in a network (circulation or flow of minimal costs). In (RZHMat, 1971, 1V447), the concepts of reducibility of problems, M sets of vectors, intermediate representation and representation of the flow along a line of a network were introduced, as well as the concept of the problem of circulation at minimum cost $T(b)$ corresponding to linear programming problem P. In particular, it has been established that: a) linear programming problem P has a corresponding problem of circulation at minimal cost $T(P)$ when and only when the rows of its matrix of limitations form a M set. b) If the rows of a matrix of limitations of problem P form a M set, P can be reduced
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USSR

FRIDMAN, A. A., LITVAK, B. G., RAPPOROT, A. M., Issled. po diskretnoy mat.,
Moscow, Nauka, Press, 1973, pp 27-40

to a problem of circulation at minimum cost, namely to $T(P)$.

In this work, with certain natural assumptions concerning problems of circulation a minimum cost, necessary and sufficient conditions are found for convergence of a linear programming problem to a problem of circulation at minimum cost, and also a broader class of absolutely integer problems is described, allowing a network statement.

2/2

USSR

UDC: 51.681.391

GRIGORENKO, V. P., NEYMARK, Yu. I., RAPOPORT, A. N., RONIN, Ye. I.

"Collective Optimization of Independent Automatic Machines With Adap-tation"

V sb. Zadachi statist. optimizatsii (Problems of Statistical Optimization --collection of works), Riga, "Zinatne", 1971, pp 31-43 (from RZh-Kiber-
netika, No 12, Dec 71, Abstract No 12V668)

[No abstract]

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USSR

KARDASH, V. A., RAPOPORT, E. O.

UDC: 51

"Concerning an Optimum Irrigation Policy Under Conditions of Runoff Regulation"

Sb. tr. In-t mat. Sib. otd AN SSSR (Collected Works. Institute of Mathematics of the Siberian Department, Academy of Sciences of the USSR), 1972, vyp. 7(24), pp 35-44 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V583 by the authors)

Translation: A model of many years of runoff regulation for irrigation purposes is considered. The model is based on an economic criterion of optimality -- maximum return on capital investments by pure income. The key design parameters of the system comprised of the irrigation complex and the irrigated land are selected with regard to the most important technical requirements for matching them. In this regard, operation of the system is treated as a random process related to the dynamics of river runoff. For a goal function of special form, simple formulas are derived which define the policy of accumulating and utilizing water each year. A method is proposed for finding optimum strategic parameters of irrigation (reservoir capacity and irrigation area).
1/1

USSR

UDC: 51

KARDASH, V. A. and RAPOPORT, E. O.

"Optimal Irrigation Policy Under Conditions of Runoff Control"

Sb. tr. In-t Mat. Sib. otd. AN SSSR (Collection of Works, Institute of Mathematics, Siberian Division, Academy of Sciences, USSR) No 7(24), 1972, pp 35-44
(from RZh--Matematika, No 7, 1973, Abstract No 7V583)

Translation: A model of long-term runoff control for irrigation purposes is considered. It is based on the economic optimality criterion that the maximum part of the return on the capital investment be pure profit. Key design parameters of the "irrigation complex-irrigated agriculture" system are selected with the most important technical demands on their correlation taken into account. In this connection, the operation of the system is considered as a random process tied to the dynamics of river runoff. Simple formulas permitting the determination of a policy of the storage and use of water each year are obtained for a goal function of special form. A method is proposed for finding the optimal strategic parameters of irrigation (the capacity of the water reservoir and the irrigation area). Authors' abstract.

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USSR

UDC: 621.375.4

RAPOPORT, E. Z.

"Quantitative Analysis of Mutual Influences Through the Supply Circuits Between Transistorized Amplifiers"

V s. Poluprovodn. pribory v tekhn. elektronika (Semiconductor Devices in Technical Electrical Communications--collection of works), Moscow, "Svyaz'", 1970, pp 66-75 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D99)

Translation: The author considers a procedure for calculating the mutual influences between transistorized amplifiers through the power supplies. Concepts are introduced of attenuations of the influence and interference which characterize the amplifier, and coupling attenuation which characterizes the power supply. It is proposed that these parameters be included in the specifications of the amplifier (power supply). An example is given to illustrate a method of engineering calculation of the parameters. Eight illustrations, bibliography of one title. Résumé.

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USSR

Rapoport, G. N.

UDC 621.372.81.09

"Relativistic Dispersion Equation for a Circular Wave Guide with a Rotating
Tubular Electron Beam Considering the Base Charge Effect"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 977-988

Abstract: The dispersion equations were found for circular wave guides with a rotating thin-walled coaxial tubular electron beam considering the nonresonance part of the electromagnetic field. A closed (without using infinite series) integral representation of the field excited in the wave guide considering the delay effect and the solution of the relativistic equations of motion of the electrons in the quadratic grouping approximation were obtained. Formulas are presented for an approximate calculation of the current density wave amplification in the wave guide and also the equivalent space charge parameter in the dispersion equation for the propagated waves considering the finite thickness of the tubular beam wall.

The calculations presented pertain to a beam with longitudinal electron velocity which does not depend (in the absence of a signal) on the radius. For a monoenergetic beam the corresponding calculations are made in the approximation of a very thin beam. In this approximation both models of the beam lead to identical dispersion equations. The equations are obtained for the excitation 1/2

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RAPOPORT, G. N., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972,
pp 977-988

of the wave guide, the motion of the electrons and the variable components of
the beam current, the dispersion equation, the beam density wave propagation
in the wave guide and the interaction of the beam with the field in the synchrony
region with the propagated wave considering the nonresonance part of the field.

2/2

USSR

UDC: 621.385.6

DENISOV, A. I., RAPOPORT, G. N.

"Approximate Calculation of the Maximum Efficiency of an O-Type Oscillator With Resonance Decelerating System in the Presence of Losses"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar 72, pp 296-301

Abstract: Approximate formulas are derived for the maximum efficiency and optimum length of the interaction space in an O-type resonance oscillator as functions of the loss parameter of the distributed cavity. It is found that the maximum attainable efficiencies (η_{max}) of an orotron, as well as resonance TWT's and BWO's with strong feedback on the reflected wave, is limited to a certain extent by losses in the distributed cavity. The maximum efficiency and length of the interaction space in such devices are proportional to the square root of the loss parameter of the distributed cavity. A loaded distributed cavity has an optimum coupling factor of 2. The region of applicability of the given approximate formulas is determined. The initial conditions are realized for a reflected-wave feedback factor close to unity.

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USSR

UDC 538.56

RAPOPORT, G. N., KOTSARENKO, N. YA.

*"Surface Currents of a Tubular Beam with Screw Electron Trajectories in a Fast Wave Field"*Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 1,
1972, pp 136-143

Abstract: A study was made of a tubular electron beam aimed by a uniform magnetic field with respect to coaxial screw trajectories in a circular wave guide. The causes of noncoincidence of the results of the "hydrodynamic" and "corpuscular" methods of analyzing the interaction of a rotating electron beam in a fast wave presented in previous papers [A. V. Gaponov, Izv. vyssh. uch. zav. -- Radiofizika, Vol 4, No 3, 547, 1961; Vol 2, No 3, 441, 1959; G. N. Rapoport, Radiotekhnika i elektronika, No 5, 144, 1960; No 5, 649, 1960; L. A. Vaynshteyn, Elektromagnitnye volny, Soviet Radio Press, Moscow, 1957] are investigated. Consideration of the beam boundary pulsations in the "hydrodynamic" analysis by introducing equivalent surface currents leads to the relativistic dispersion equation obtained by Gaponov in the case of small thickness of the beam wall.

For small thickness δ of the beam wall the coefficients of the dispersion equation do not depend on δ or consequently, on the form of the functions $1/2$

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Rapoport, G. N., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
Vol XV, No 1, 1972, pp 136-143

$v_{||}(r)$ or $\omega_h(r)$ if the variations of these variables are proportional to δ .
The hydrodynamic investigation considering the surface currents in the beam
leads to the correct (in the single-wave approximation) dispersion equation
both for TE and TM waves.

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